



**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of

Docket No: Q54488

Masahiro OHMORI, et al.

Appl. No.: 09/579,708

Group Art Unit: 1754

Confirmation No.: 7789

Examiner: Steven J. Bos

Filed: May 26, 2000

For: PEROVSKITE TITANIUM-TYPE COMPOSITE OXIDE PARTICLE AND PRODUCTION  
PROCESS THEREOF

**DECLARATION UNDER 37 C.F.R. § 1.132**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Akihiko Shirakawa, hereby declare and state:

THAT I am a citizen of Japan;

THAT I received a Bachelor's degree from Kyoto University in 1989;

THAT I am employed by Showa Denko K.K., where I hold a position as Assistant  
Staff Manager, with responsibility for ceramics research;

THAT in order to show the unexpected superiority of the particles of the  
present invention, the following determinations were made by me or under my direct  
supervision as described below.

The A/B mole ratio was determined for the Examples and the Comparative  
Examples in the present specification.

	Synthesis A/B mole ratio	Product A/B mole ratio
Example 1	0.999	0.999
Example 2	0.998	0.998
Example 3	0.999	0.998
Example 4	1.000	1.000
Comparative Example 1	0.999	0.984
Comparative Example 2	0.998	0.996
Comparative Example 3	1.001	0.975

As shown above, the A/B mole ratio of the product is nearly equal to the A/B mole ratio of the synthesis materials in the Examples of the present invention.

In contrast, the A/B mole ratio of the particles of Bruno is smaller than the A/B mole ratio of the synthesis materials because an alkoxy system is employed in which a washing step is required. See Table 1 in Bruno. In addition, the A/B mole ratio of the particles of Menashi is smaller than the A/B mole ratio of the synthesis materials because a hydrothermal process is employed and the product is washed with water or  $\text{Ba}(\text{OH})_2$  solution to reduce the Ba/Ti mole ratio in the product. See col. 7, line 43-57 et seq.

Generally, a washing step generates a great amount of defects when barium compounds are eliminated from the surface of particles. Since both Bruno and Menashi use washing steps, the particles have defects that damage the electrical properties of the particles.

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The mole ratio of the particles of the present invention is nearly equal to the mole ratio of the synthesis materials because the process of making the particles of the present invention uses no wash step, which generally generates a great amount of defects when barium compounds are eliminated from the surface of particles. As a result, the particles of the present invention unexpectedly have good electrical properties.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: \_\_\_\_\_

Akihiko Shirakawa  
Akihiko Shirakawa